Brad Russell

Technology in the Classroom

6/29/2010

# Project Learning vs. Discovery Learning

Project learning and discovery learning have quite a bit in common but they also differ in some key areas. They are similar in the sense that they both are more students focused then teacher focused and that they ask students to go out and discover on their own something related to the content. However, they differ in the sense that one is very broad and can be done in multiple ways while the other can be more focused to a specific content area. In the following paper, I will give a brief description of each of these learning models and compare some of the similarities and differences of the two models.

Project Based Learning

Project based learning is a model that is based in John Dewey’s progressive movement in education. It is a highly student centered model that asks the student to investigate some aspect of a content area. What the student wants to investigate is entirely up to the student. For example, if you want students to learn about frogs, you would ask them something along the lines “what makes a frog a frog?” The teacher will then allow students to go out and find the answer for themselves. Now each student can tackle this prompt from different angles. For example, one student might focus on the internal make up of a frog. This will educate the student about the internal anatomy of a frog and how it operates. Another student might look at a frog from a more environmental standpoint. This student would learn about the kinds of environments frogs live in and what differences occur when looking at frogs from different environments. And yet others might focus on a particular frog species while others might look at frogs as a whole. The project method in this situation gives students the ability to investigate whatever they want to investigate about a given topic.

The strength of project based learning is that it allows students the freedom to investigate what they want to investigate within very broadly defined expectations. Researchers seem to suggest that this leads to increased student motivation and learning (Martin, 2009). This gain however seems dependent on the quality of the project and the level of student engagement. There are some potential downsides however. It seems the management and preparation of project based learning can be quite difficult and has a lot of variables that need to be monitored. It is suggested that constant formative assessment is needed to prevent problems from arising as a result of these challenges (Martin, 2009). Also, time is a major issue with project based learning. Many teachers underestimate the amount of time it will take for students to complete these projects. At the same time, many students underestimate the amount of work is needed and don’t manage their time properly. Project based learning appears to have a number of strengths and weaknesses that need to be managed in order to take full advantage of the models effectiveness.

Discovery Learning

Discovery Learning is a model that focuses on giving students a problem and asking them to solve it. Teachers are expected to provide the problem and the resources to solve it, while students are expected to use these tools to find a solution for the problem. For example, using the same frog based idea in the project based learning method, let’s say a teacher asks his/her class what the internal makeup of a frog is like. The teacher gives the students a series of websites and resources to help them solve this problem. Students then go out and use these tools to answer the question. The teacher and provide a rubric or a detailed worksheet of some kind that students can use to guide their learning. When complete, students hand in their assessment and the project is complete. This method gives the teacher control over what students learn while simultaneously allowing students to investigate things on their own. Technology can be integrated into the project by simply having a technological resource being one of the resources one gives students to complete the activity. By using this method, teachers give students get to investigate the problem while sticking within the strictly defined content area the teacher wishes.

Discovery learning’s allows teachers to simultaneously engage students while focusing them on a specific content area. This allows teachers to stick to the standards presented by the district without having to create a teacher centered environment. According to Ken Martin, some of the advantages of this method include, active student engagement, the generation of student curiosity, the development of lifelong learning skills, the personalization of the learning experience, increased student motivation, and that it builds on student’s prior understanding. The main drawback of this method is that those students need a degree of background knowledge before they can engage in discovery learning (Mifflin 2000). Given these strengths and weaknesses discovery learning appears to allow students the ability to focus on a given content area in a way that fosters student engagement and understanding.

The Comparison

Both project based learning and discovery education are student centered models of learning. However, Project based learning seems to be more student centered the discovery learning, but discovery learning allows the teacher to give more structure and direction then project based learning. This leads to some of the differences in the model. Discovery learning will be easier to align with state standards because the teacher is directing what the students are learning. However, project based learning might generate more student interest because students get to investigate something from whatever angle interests them. When to use one or the other seems to be highly dependent on the school and the teacher.

One other area to consider is the amount of preparation and management work is involved in each of these methods. With discovery learning, the teacher has done a lot of preparatory work to get students ready to the activity. With project based learning, the teacher does more formative assessment with the students to determine where they are and help point them in the right direction when needed. In terms of work, both require quite a bit of work but discovery learning obviously takes more pre-planning work then does project based learning. However, because project based learning is a lot less structured and more open then discover learning, there is a lot more room for student confusion and need for teacher guidance while they are doing the research. So the comparisons here is quite obvious, on the one hand, the teacher will need to do a lot of preparatory work in order to manage what students do, or the teacher will need to do a lot of formative assessment to make sure students properly understand the material they are researching. Either way, teachers are being asked to do quite a bit of work so the only real difference here is the amount of work a teacher wants to put into a project before, after and during.

The final area of comparison that I will focus on in this paper is assessment. Discovery learning is obviously easier to assess because there is a specific content direction that the teacher wants the student to explore. Project based learning is more difficult to assess because each student is looking at something from an entirely different angle. In this sense it will be difficult to establish clear expectations in a project based learning environment. This could lead to student confusion and a decrease in student achievement because they put the minimum amount of work they believe is necessary to accomplish their task. However, the alternative could be true because students might put more work into a project based learning activity because of the same uncertainty. This means any teacher who wants to assess a project based learning activity must find the right balance between structured activity and openness in order to ensure maximum student learning. This in itself makes it a monumentous challenge in comparison to discovery learning. So when one looks at this comparison from an assessment standpoint, project based learning seems to be an obvious pick for more difficult and harder to quantify because of the nature of the model.

Overall, the two learning models seem to have their strengths and weaknesses. Many of these strengths and weaknesses can be filtered out, depending on the school climate one is in. For example, if one is in a school where standards reign and there is an essentialist streak, then discovery learning is the model to go with. If one finds themselves in a school where student centered is the main focus of the day then project based learning is better. It also depends on the teachers goals as well. If a teacher needs to get a certain concept across, then discovery learning is probably going to be more effective. If a teacher doesn’t care so much about a specific concept then a project based model would probably be more effective. The two learning models have their strength and weaknesses and it is up to a teacher to decide when to use each of them.